Pulse-Start Metal Halide Fact Sheet

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Pulse-start metal halide (MH) lamps are high intensity discharge (HID) lamps. HID lamps operate on the principal that an arc struck between two electrodes can produce a lot of light.

HID lamps were invented to solve an incandescent technology problem. Incandescent bulbs become very hot and do not last long at high wattages. Initially, mercury vapor (MV) lamps were invented to solve this problem, then came high pressure sodium (HPS). Now, metal halide is the HID lamp of choice.

Pulse-start metal halide lamps utilize a glass arc tube to contain the arc. Pulse-start technology has been used in lower wattage HPS lamps for decades. The technology has just recently moved into the higher wattages.

The advantages of pulse-start over standard probe-start are higher efficacies (lumens/watt), quicker start and re-strike times, longer life, and improved lumen maintenance. Just like all other HID lamps, the electrodes deteriorate over time, which is a major cause of lamp failure.

Suitable Applications:
The most suitable applications are industrial high bay general and task illumination with over 40-foot mounting heights. HID fixtures have the ability to push light down to the floor. Other competing technologies can do a better job in the medium to low bay applications.

Basic Lamp Specifications:

- 15,000 to 20,000 hour life -- Typical 20,000 hours, or about five years
- Very high initial efficacy, medium mean efficacy -- 98 to 69 lumens/watt
- The higher wattages (1000W) have higher efficacies -- 107 initial to 86 mean lumens/watt
- Crisp white light with up to 70 CRI -- Good color rendering
- 2-minute start/4-minute re-strike vs. 4-min start/15-min re-strike for standard MH
- Lumen maintenance is around 70 percent -- Better than probe start
- Color temperature range is 3600 to 4000 Kelvin
- Temperature tolerant -- Operates in hot and cold environments

These lamps are an improvement over conventional probe-start metal halide and HPS.

Product Descriptions and Other Considerations:
The light source consists of a ballast, igniter, and bulb. The ballast provides the start-up voltage, then backs off and delivers a constant operating voltage and current. The igniter strikes the arc, and the bulb houses the arc tube. MH bulbs look like large incandescent bulbs.

Philips, OSRAM/Sylvania, GE, and Venture Lighting are the main manufacturers.

From an energy savings standpoint, pulse-start metal halide lamps are only cost effective when compared to incandescent, mercury vapor, or standard probe-start metal halide.

Metal halide luminaires are generally less expensive than the alternatives, but the alternatives are usually a better choice at mounting heights less than 40 feet.

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